EGS Integration & Test Program Plan Overview

Presented to the TICTOC 7/3/96

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EGS I&T Program Plan

- Agenda
  - Background for a new approach
  - New basis for the I&T Program
  - Program Overview
  - EGS I&T Program Management

Background to New Approach

- EGS I&T approach modified
  - Implementation of streamlining option selected by the project
  - Objective of reducing overlapping tests
  - Need to be more flexible and responsive to changes
- ECS component testing eliminated and EGS I&T expanded to include basic component functionality tests
- Emphasis shift - most requirements verification in pre-delivery testing; Operability, fault tolerance, scalability, push/pull interaction, performance, and stability/contention in post delivery testing

Objectives

- EGS Integration
  - Interfaces
  - Functionalities
- EGS system performance and stress tests
- Error and exception handling
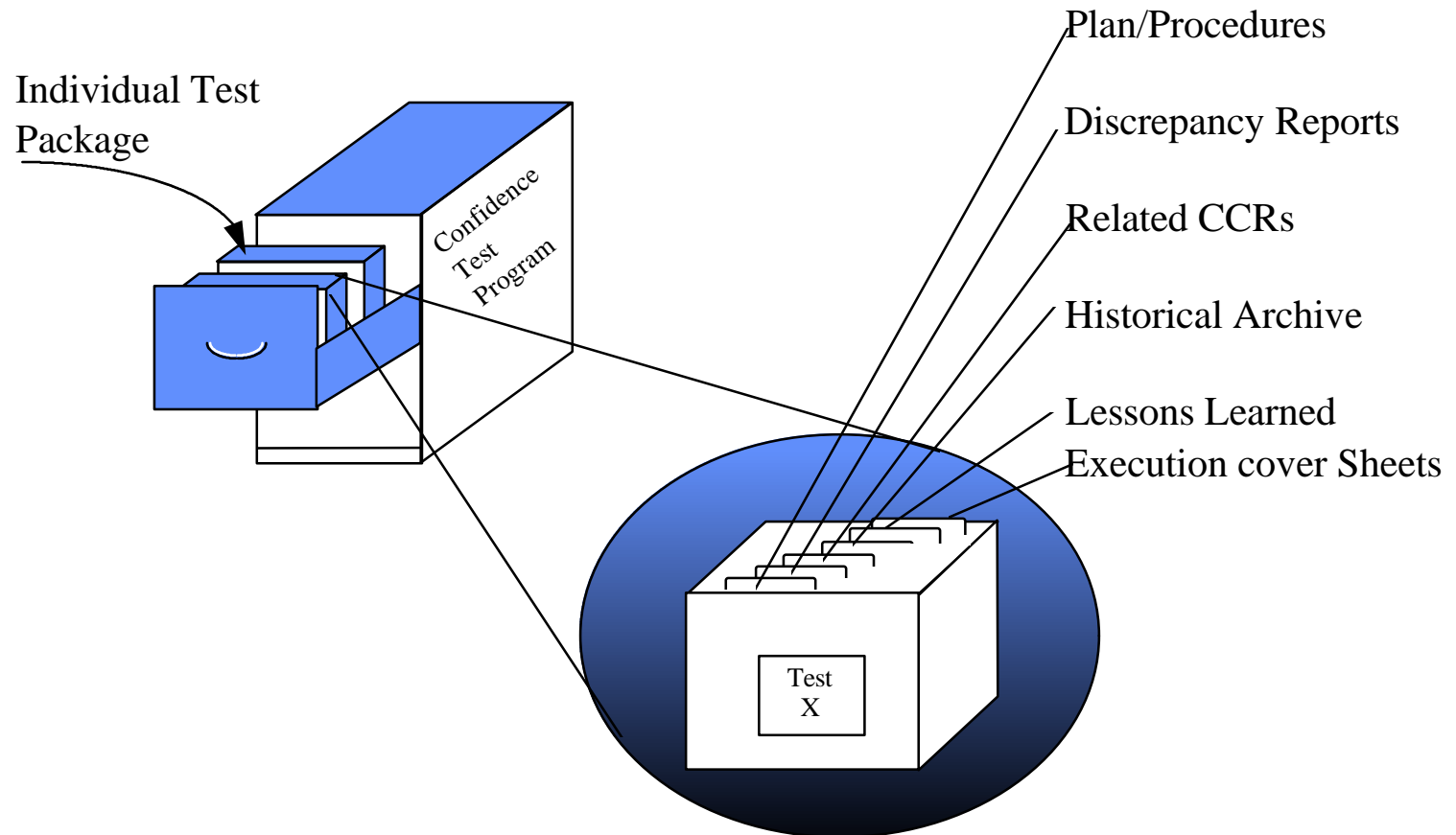- DAAC unique testing
- Joint testing

New Basis for EGS I&T Program

- EGS I&T redefined into two parts
  - Confidence Test Program
  - Flight / Instrument Project Joint Test Program
- Requirements base - Formal tracking of requirements verification focus's on mission critical requirements and a subset of interface and processing requirements
- Test Packages built toward final system capabilities
  - EGS version independent
  - Version specific capabilities and configuration are captured in the execution cover sheets

Test Package Content

Individual Test Package

Confidence Test Program

Plan/Procedures

Discrepancy Reports

Related CCRs

Historical Archive

Lessons Learned

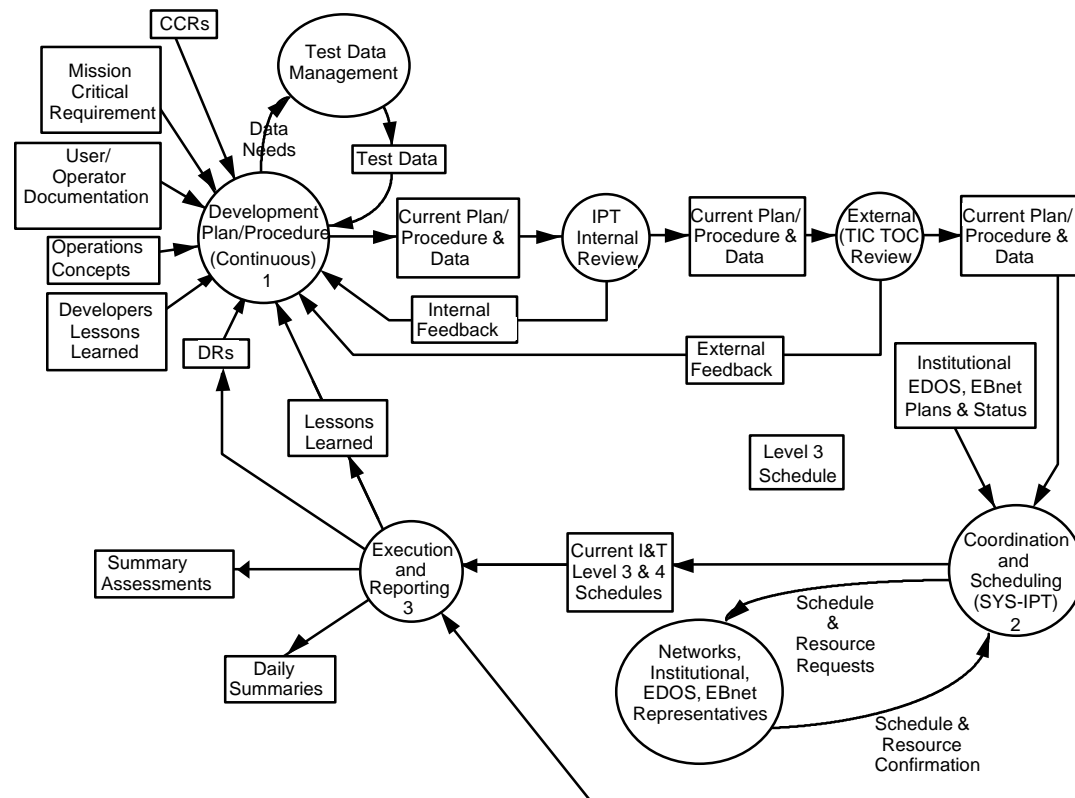Execution cover Sheets

Test X
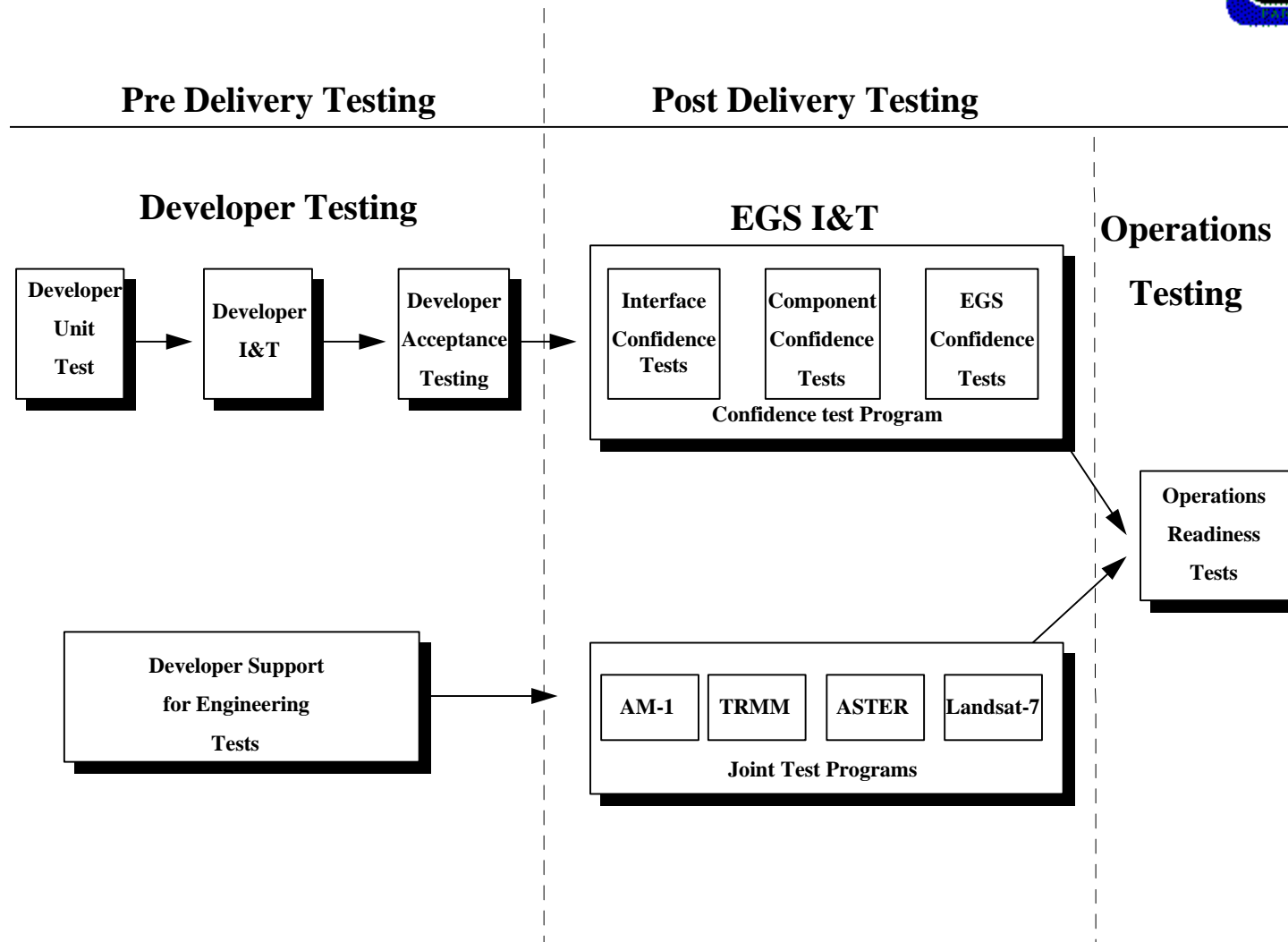
Test Package File Drawers

- Use the Test Management Data Base (TMDB) for Plan and Procedure development

- Use the TMDB for requirements matrices

- Ideally have electronic access to test packages via the WEB

Test Package Evolution Process

EOSDIS Test Flow

Pre Delivery Testing | **Post Delivery Testing**

Developer Testing

EGS I&T

Operations Testing

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Developer Unit Test  →  Developer I&T  →  Developer Acceptance Testing  →
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Confidence test Program

Interface Confidence Tests	Component Confidence Tests	EGS Confidence Tests

Developer Support for Engineering Tests →

Joint Test Programs

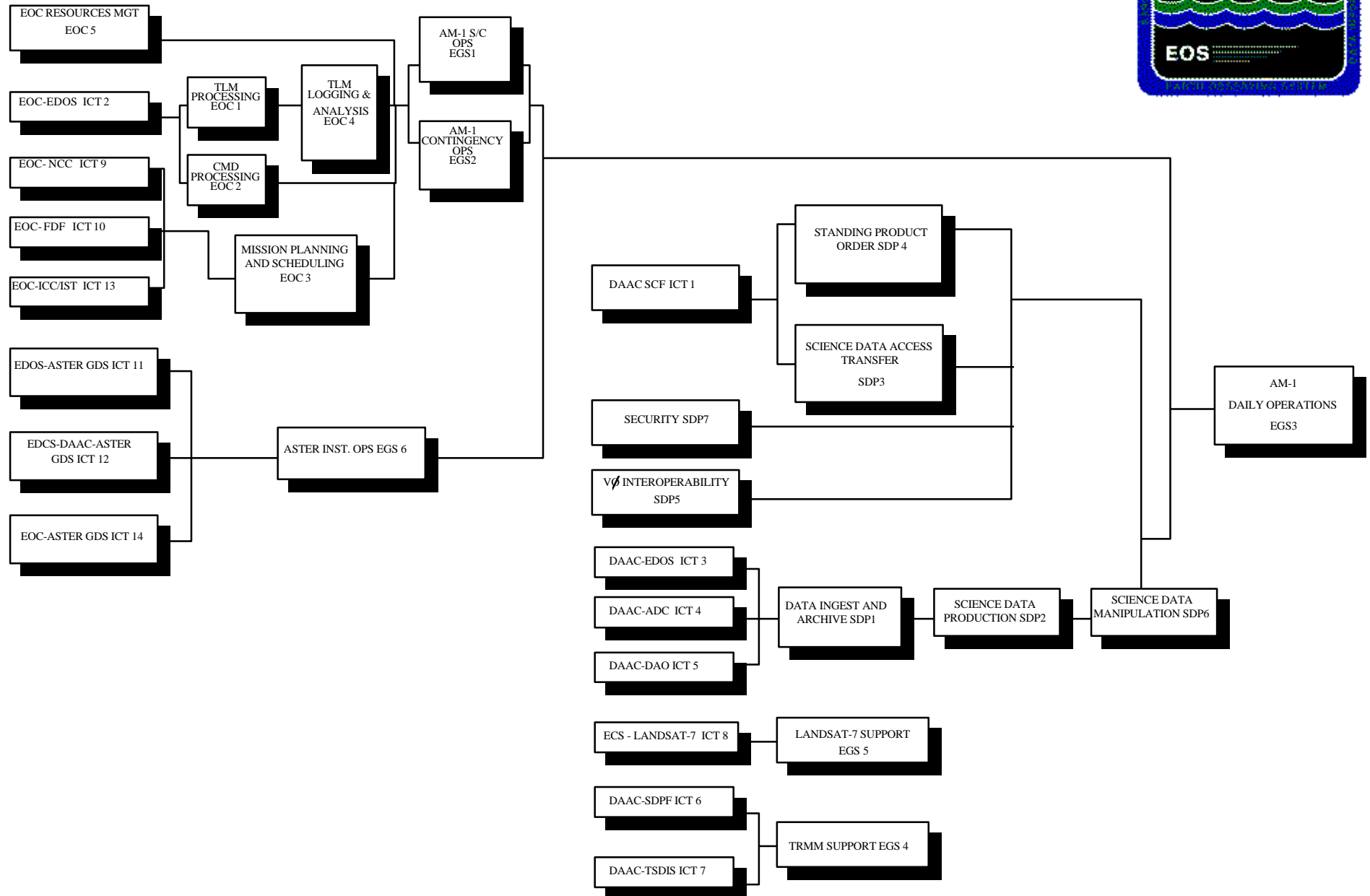| AM-1	TRMM	ASTER	Landsat-7

Operations Readiness Tests

Confidence Test Program

- Confidence Tests - scenario driven, verification of functionality
  - Lead by appropriate EGS I&T IPT
  - Separate test packages for each test
  - Test package evolution
- Built up from three levels
  - Component (EOC, DAAC, EDOS, EBnet) tests
  - Interface Confidence Tests
  - EGS Confidence Tests

Initial Confidence Tests

EOC RESOURCES MGT
EOC 5

EOC-EDOS ICT 2

EOC- NCC ICT 9

EOC- FDF ICT 10

EOC-ICC/IST ICT 13

TLM
PROCESSING
EOC 1

CMD
PROCESSING
EOC 2

MISSION PLANNING
AND SCHEDULING
EOC 3

TLM
LOGGING &
ANALYSIS
EOC 4

AM-1 S/C
OPS
EGS1

AM-1
CONTINGENCY
OPS
EGS2

EDOS-ASTER GDS ICT 11

EDCS-DAAC-ASTER
GDS ICT 12

EOC-ASTER GDS ICT 14

ASTER INST. OPS EGS 6

DAAC SCF ICT 1

STANDING PRODUCT
ORDER SDP 4

SCIENCE DATA ACCESS
TRANSFER
SDP3

SECURITY SDP7

V∅ INTEROPERABILITY
SDP5

AM-1
DAILY OPERATIONS
EGS3

DAAC-EDOS ICT 3

DAAC-ADC ICT 4

DAAC-DAO ICT 5

DATA INGEST AND
ARCHIVE SDP1

SCIENCE DATA
PRODUCTION SDP2

SCIENCE DATA
MANIPULATION SDP6

ECS - LANDSAT-7 ICT 8

LANDSAT-7 SUPPORT
EGS 5

DAAC-SDPF ICT 6

DAAC-TSDIS ICT 7

TRMM SUPPORT EGS 4

Joint Test Programs

- Joint Tests - Tests supporting missions requiring EGS resources
  - Lead by the Flight / Instrument Project
  - Separate test packages for each test
  - Test package evolution (or one shot tests)

- Joint Test Missions
  - TRMM
  - Landsat-7
  - ASTER
  - AM-1

EGS I&T PROGRAM MANAGEMENT

- TICTOC
  - Status and information exchange across test organizations
- EGS I&T Integrated Product Teams
  - Systems
  - Flight Systems and Operations
  - Science Systems and Operations
  - EDOS

Systems IPT

- Top level coordination between all IPTs
- Responsible for EGS system level testing
- Test and resource scheduling
  - EGS
  - Institutional
  - Joint Tests
- EGS I&T library and web site
- Tools, training, and data bases
- Metric definition and tracking

Flight Systems and Operations IPT

- Integration and Testing of Flight Operations Functions
  - EOC and related interfaces
  - Instrument Operations, including ISTs
  - ASTER command and control interfaces and operations
  - ASTER and AM-1 Joint Tests

Science Systems and Operations IPT

- Integration and Testing of
  - Science Data Production
  - Data Management
  - Security
  - User Data Access Functions
  - Interfaces
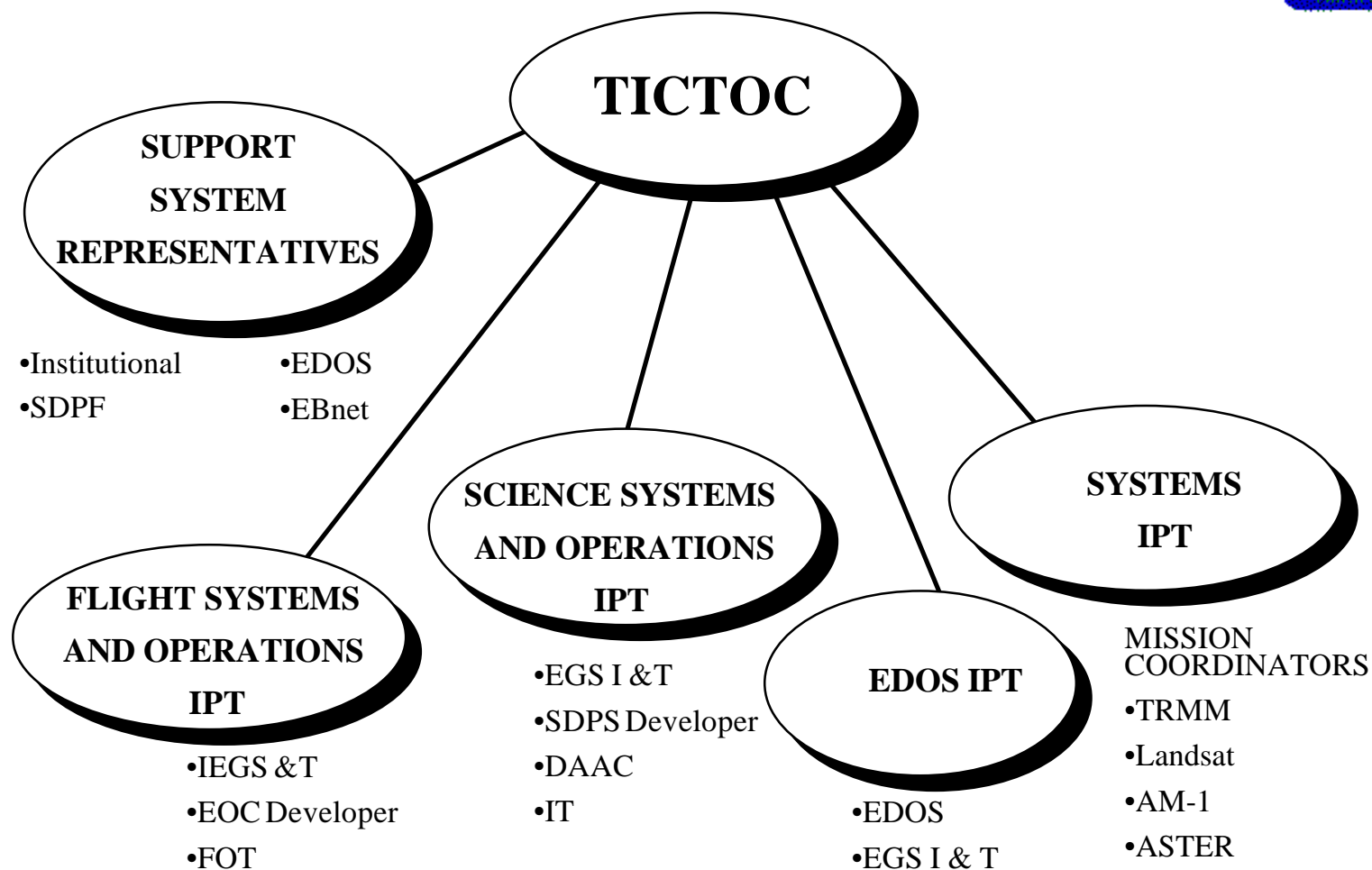 - TRMM and Landsat-7 Joint Tests

EDOS IPT

- Under GSFC 510 direction with EGS I&T participation
- Defines EDOS component confidence tests from existing EDOS test programs
- Coordinates EDOS participation in all EGS I&T tests and visa versa

EGS I&T Structure

TICTOC

SUPPORT SYSTEM REPRESENTATIVES

- Institutional
- SDPF
- EDOS
- EBnet

FLIGHT SYSTEMS AND OPERATIONS IPT

- IEGS &T
- EOC Developer
- FOT

SCIENCE SYSTEMS AND OPERATIONS IPT

- EGS I &T
- SDPS Developer
- DAAC
- IT

EDOS IPT

- EDOS
- EGS I & T

SYSTEMS IPT

MISSION COORDINATORS

- TRMM
- Landsat
- AM-1
- ASTER

Plan Location

- Plan available for review at:
    - http://fairmont.ivv.nasa.gov/it/library/library.html
    - Comments to Jane Fisher (ejf@cclink.gblt.inmet.com) by 2 August